

Abstract

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A method of plasma etching, in particular of anisotropic plasma etching, of laterally defined structures in a silicon substrate, using a process gas, is described. At least one passivating material is precipitated on the side walls of the laterally defined structures at least from time to time prior to and/or during etching. In a first method, the addition of at least one of the compounds selected from the group  $\text{ClF}_3$ ,  $\text{BrF}_3$ , or  $\text{IF}_5$  to the process gas as a fluorine-delivering etching gas is proposed. In a second method,  $\text{NF}_3$  is added to the process gas, at least from time to time, as an additive consuming the passivating material. Finally, in a third method, a light and easily ionizable gas, in particular  $\text{H}_2$ ,  $\text{He}$ , or  $\text{Ne}$ , is added, at least from time to time, to the process gas. The three methods can also be combined.

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